Table. The Global HIV–AIDS Epidemic at the End of 2003.*

Region	No. of People Living with HIV–AIDS	Prevalence of HIV–AIDS among Adults	No. of New HIV Infections in 2003	No. of Deaths Due to AIDS in 2003
		%		
Total	37,800,000	1.1	4,800,000	2,900,000
Sub-Saharan Africa	25,000,000	7.5	3,000,000	2,200,000
South and Southeast Asia	6,500,000	0.6	850,000	460,000
Latin America	1,600,000	0.6	200,000	84,000
Eastern Europe and Central Asia	1,300,000	0.6	360,000	49,000
North America	1,000,000	0.6	44,000	16,000
East Asia	900,000	0.1	200,000	44,000
Western Europe	580,000	0.3	20,000	6,000
North Africa and Middle East	480,000	0.2	75,000	24,000
Caribbean	430,000	2.3	52,000	35,000
Oceania	32,000	0.2	5,000	700

* Data are from the Joint United Nations Program on HIV/AIDS.[2]

The WHO has set a goal of providing antiretroviral treatment to 3 million people in developing countries by the end of 2005 — the so-called 3-by-5 initiative. Even if this ambitious plan succeeds — which is by no means assured — only about half the people who need treatment will be receiving it. Despite substantial progress, there remains a large gap between the number of people in developing countries who need treatment (4 to 8 million) and the number being treated (about 400,000, as of the end of 2003, including about 100,000 in sub-Saharan Africa).[1] "Dismal" would be a charitable way of describing the treatment-coverage rates in many countries. Botswana, Senegal, and Uganda are three African nations that are doing better. Brazil, which has a large-scale universal program for the distribution of antiretroviral medications, is another developing nation that has made substantial progress against the epidemic. Botswana, which has one of the highest HIV infection rates in the world, has instituted routine HIV testing and is expanding access to treatment.[4]

The International AIDS Conference will bring new energy, attention, and perhaps resources to the battle against the pandemic. Unfortunately, global control is not in sight.

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3. Chase M. Gates Foundation bets it can stem India's AIDS crisis. Wall Street Journal. May 3, 2004:A1.
4. LaFraniere S. Mandatory testing bolsters Botswana in combating AIDS. New York Times. June 14, 2004:A1.

GLOBAL HEALTH

HIV and AIDS in the Former Soviet Bloc

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As compared with most nations affected by the human immunodeficiency virus (HIV) and AIDS, the countries of the former Soviet Bloc encountered the disease rather late. The first public announcement of cases of HIV infection in the former Soviet Union came in the mid-1980s and was greeted with denial and derision: many believed that AIDS could not happen there and that it must therefore be limited to homosexuals, drug addicts, and other "deviants," as well as black Africans and foreign tourists. Some believed that HIV was developed by the United States as part of the Cold War, to be "tested" on marginalized persons who led a disorderly sexual life.

The epidemic may have taken a long time to reach this region because of the strict controls once placed on the movement of people and contacts with foreigners. With the collapse of the Soviet Union in 1991, the barriers between its republics and the rest of the world tumbled down, facilitating the propagation of the virus. Today, this region has some of the fastest-growing rates of HIV infection in the world, according to the United Nations Development Program (UNDP).[1]

Because of the nature of the disease, measuring the extent and progression of the epidemic is a matter of educated estimates based on a variety of indexes and assumptions (see Figure). In 2003, the

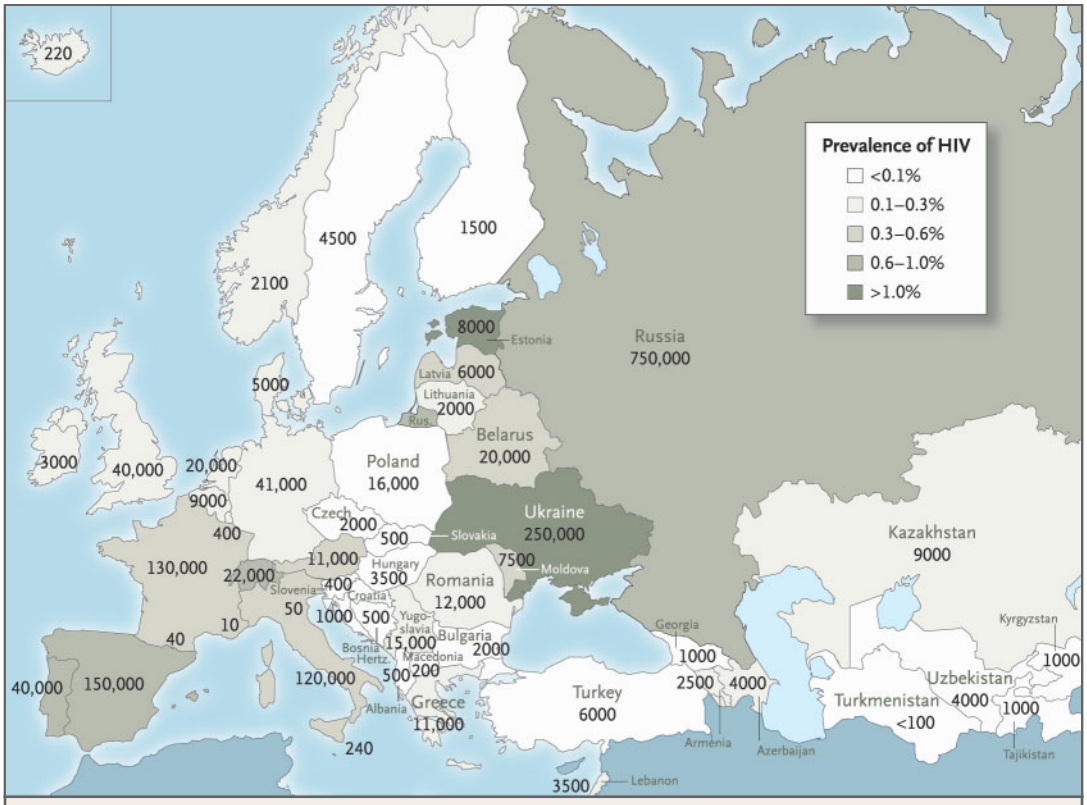

Figure. Estimated Prevalence of HIV Infection and Number of People Living with HIV Infection or AIDS, End of 2001.
Adapted from the United Nations Development Program[1]; data are from the Joint United Nations Program on HIV/AIDS and the World Health Organization.

official Russian figure was 240,000 cases of HIV infection. The United Nations estimate was 750,000 to 1.2 million — somewhere around 1 percent of the adult population. Predictions vary widely, but some estimate that by 2020, the figure will be as high as 14.5 million.[2] There is wide variation from region to region and from town to town, in other former Soviet republics and in Eastern Europe more generally, with the highest rates in the major cities. Most infected persons (about 80 percent) are younger than 30 years of age (as compared with about 30 percent in the United States).

The primary carriers of the disease are boys and young men, although the rates among women are increasing. The virus spread first among users of injection drugs (mainly opiates obtained from neighboring Afghanistan) who share syringes, needles, and sometimes a home brew of drugs. Other groups at risk are homosexuals and bisexuals, with transmission from the latter group contributing to the epidemic among women and, through them, newborns. Prostitution also contributes to the spread of the virus, since few sex workers insist that their partners wear condoms and many men refuse to do so. Other important incubators are the prisons, where inmates are held for unconscionably long periods in abysmal conditions — crowding, poor nutrition, dismal medical care, and exposure to homosexual activity — before going to trial. When prisoners are released into the community, they contribute to the further spread of the disease.

There have also been several iatrogenic cases resulting from the use of contaminated equipment in the vaccination of infants, as well as nosocomial infections among patients in Russia and Romania. The blood supply has often been contaminated owing to a lax testing system and a black market that arose in response to blood shortages.

The first "serious" reaction to the appearance of the disease was couched in moralistic and criminalizing terms, reflecting the Soviet culture's prud-

ishness with regard to sexual matters. As in many other places, AIDS was seen by some as divine punishment for a sinful way of life, and its lethality was viewed as a blessing, since it would rid the world of deviants. In 1997, a group of Russian medical school graduates issued a statement proclaiming, "We are . . . categorically opposed to combating the 'new disease' AIDS! We intend . . . to impede the search . . . to combat this 'noble' epidemic. We are certain that . . . AIDS will destroy all drug addicts, homosexuals, and prostitutes. . . . Long live AIDS!"[3]

At the policy level, the initial response was characterized by indifference, as the spread of the virus was accorded the low priority that had commonly been given to health care in the Soviet Union and that remains prevalent in the region today. Then strict measures were enacted in the form of laws calling for mass testing and other drastic steps that were poorly implemented and ultimately largely abandoned. The major question was whether to focus on treatment or prevention, given grossly inadequate resources.

The medical system inherited from the Soviet Union was woefully underfinanced and poorly supplied and equipped. The medical establishment and clinicians were unaware of many Western medical advances. The collapse of the political system led to a further deterioration of health care. The UNDP estimates that in the Russian Federation, the current per capita annual expenditure for HIV infection and AIDS amounts to 5 rubles — the price of a pack of cheap cigarettes.[4]

Prevention is difficult: in most of the countries of the former Soviet Bloc, the medical community and the population at large know little about the nature of the disease or its transmission. Sex education was introduced in the late 1980s but has been strongly opposed by conservatives, who also see needle-exchange programs as encouraging the use of drugs.

According to the UNDP, when the prevalence of AIDS reaches about 1 percent of the adult population, it should be taken as a warning signal that a tipping point has been reached. If the epidemic is not addressed with drastic and effective measures, it becomes difficult to constrain or reverse.

The conditions that would permit such a change are multifactorial, involving many segments of society. Leadership, responsibility, transparency, democracy, and broad cooperation are required, as is the investment of a large amount of financial resources. On the most obvious practical level, well-equipped facilities and relatively expensive drugs are required. Efforts must be made to educate young people about high-risk behavior and the nature and transmissibility of HIV. But there are also cultural barriers to be overcome. The stigmatizing quasi-criminalization of the disease must be abandoned, and affected persons must be recognized and accepted as victims with human rights rather than perpetrators who are being punished.

In addition, such change requires the political will and full support of the governing bodies and the reform of "breeding" institutions such as the prison system. The public should be made aware not only of the social implications of the epidemic, but also of its consequences in contributing to the decline of the productive population and to an increase in the number of abandoned and orphaned children. Unless the epidemic is stopped or controlled, it will result in a sizable decrease in the gross domestic products (GDPs) of the former Soviet republics. It is estimated that the epidemic will cost these countries about 1 percent of their GDP in lost productivity annually and that health care for affected persons will cost between 1 and 3 percent of their GDP — funds that are difficult to raise in impoverished countries.[1]

The demographic projections are equally dismal. Since the early 1990s, the population has been decreasing steadily, and this trend is expected to continue. AIDS is expected to kill about 20 million Russians by 2025, and given the toll of tuberculosis, cardiovascular disease, and other sexually transmitted diseases such as syphilis, the population of Russia may be 100 million or lower by midcentury, as compared with 144 million in 2003, arousing concern about implications for Russian territorial integrity.[5] Although the outlook is somewhat better in some other Eastern European countries, such as Poland, the legacy of the Soviet system, with its rigid authoritarianism, hinders the transparency and flexibility required for anti-AIDS efforts, as noted above.

The situation is not entirely bleak: in the face of a lack of serious engagement by the government, some steps have been taken by nongovernmental organizations, particularly foreign groups that have made some important inroads. Unfortunately, these organizations, as well as such burgeoning aspects of a civil society as free speech, have not met with great approval from Russia and other states.

The threats in the region from AIDS and other

epidemics are potentially dire. Prophecies are always hazardous, but in the former Soviet Bloc, the outlook for the next few decades is perhaps best characterized by a Russian neologism invented to describe the adverse effects of the disintegration of the Soviet system: "katastroika."

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Anthracycline Cardiotoxicity in Children

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More than 70 percent of children who are treated for childhood cancer can be cured. For long-term survivors, possible late effects of treatment and their consequences for the quality of life are a major concern. Cardiotoxic effects of anthracyclines are among the most frequent and serious adverse effects of the treatment of childhood cancer. Anthracyclines such as daunorubicin, epirubicin, and doxorubicin have been used for more than 30 years, and nearly 60 percent of children with cancer are currently being treated with such agents.

The mechanisms behind cardiotoxic effects are not fully understood, but lipid peroxidation and the generation of free radicals by anthracycline–iron complexes are thought to play major roles. Clinical cardiotoxic effects are defined as symptoms of clinical heart failure, and subclinical cardiotoxic effects as cardiac abnormalities detected in asymptomatic persons by means of various diagnostic methods. Cardiotoxic effects may occur early — during therapy or within the first year after therapy; late cardiotoxic effects are defined as those occurring one year or more after the end of treatment.

What is known about the frequency of cardiotoxic effects and associated risk factors? The reported frequency of clinical cardiotoxic effects in children treated with anthracyclines varies from 0 to 16 percent. Differences in study populations, treatment regimens, and the duration of follow-up could account for this wide variability. The risk of clinical cardiotoxic effects' occurring as long as 15 years after treatment with a mean cumulative dose of anthracyclines of 300 mg per square meter of body-surface area is estimated to be approximately 5 percent. The frequency of late subclinical cardiotoxic effects, defined in terms of abnormal findings on echocardiography, has been reported to be as high as 57 percent among survivors of childhood cancer. Important risk factors for clinical and subclinical cardiotoxic effects are a higher cumulative dose, receipt of mediastinal radiation therapy, female sex, and younger age at diagnosis; the risk increases over time. In a cohort study in which we followed 607 patients for a mean of 6.3 years after treatment, no clinical cardiotoxic effects developed in patients who had received a cumulative dose of anthracyclines less than or equal to 300 mg per square meter. However, studies have shown that even after a lower dose of anthracyclines, subclinical abnormalities may be detected.

Can the cardiotoxic effects of anthracyclines be prevented? There are several possible ways to do this. First, avoiding anthracyclines would be an option. In most treatment protocols for childhood cancer, anthracyclines have been introduced without data from randomized, controlled trials that would support their use. For tumors for which no survival benefit of anthracyclines has been established, the need for anthracycline therapy should be reevaluated.

Second, cardiotoxic effects may be prevented by lowering the cumulative dose, lowering the peak